Carrier

Turn to the experts

Product Data

WeatherMaster® Single Packaged Rooftop Heat Pump Units

3 to 10 Nominal Tons

WeatherMaster®

50HCQ 04, 05, 06, 07, 08, 09, 12
with Puron® (R-410) Refrigerant

Features/Benefits

Carrier WeatherMaster® 3 to 10 Ton rooftop unit (RTU) was designed by customers for customers. With "no-strip" screw collars, handled access panels, and more we've made your unit easy to install, easy to maintain, easy to use and reliable.

Easy to install:

All WeatherMaster® units are field-convertible to horizontal air flow; no special kit required on 04-09 models. Supply duct kit required for size 12 only. Convertible airflow design makes it easy to adjust to unexpected job site complications. Lighter units make easy replacement. Carrier 3 to 10 ton 50HCQ rooftops fit on existing Carrier curbs dating back to 1989. Also, our large control box gives you room to work and room to mount Carrier accessory controls.

Easy to maintain:

Easy access handles by Carrier provide quick and easy access to all normally serviced components. Our "no-strip" screw system has superior holding power and guides screws into position while preventing the screw from stripping the unit's metal.

Easy to use:

The central terminal board puts all your connections and troubleshooting points in one convenient place, standard. Most low voltage connections are made to the same board and make it easy to find what you're looking for and easy to access it.

Reliable:

Each unit comes with precision sized and tested scroll compressor that is internally protected from over temperature and pressures. Each refrigerant circuit is further protected with a high pressure, loss of charge and freeze protection switch. In addition, a liquid line filter drier and suction line accumulator protects each circuit. Each unit is factory tested prior to shipment to help ensure units operation once properly installed.

Key features:

Key features are:

- Up to 28% lighter than similar industry units. Lighter rooftops make easier replacement jobs.
- SEER up to 15.8, EER up to 12.8.
- IEER up to 14.0 with single speed indoor fan motor and up to 15.6 with 2-speed/VFD indoor fan motor.
- 3 to 10 ton units fit on existing Carrier rooftop curbs which saves time and money on replacement jobs.
- Standardized components and layout. Standardized components and controls make service and stocking parts easier.
- Scroll compressors on all units. This makes service, stocking parts, replacement, and troubleshooting easier.
- Crankcase heater on all models (except 04 size) provides added protection in all applications.
- Precision-sized refrigerant suction line accumulator provides high reliability by preventing liquid from entering the compressor during low ambient conditions and reverse cycle switch over.
- Field convertible from vertical to horizontal airflow on all models. No special kits required on 04 to 09 models. Supply duct kit required for 12 size model only.
- 4-way reversing valve rapidly changes the flow of refrigerant to quickly changeover from cooling to heating and heating to cooling.
- Easy-adjust, belt drive motor available on all sizes. Carrier provides a factory-solution for most points in the fan performance table. There's no need for field-supplied drives or motors.
- 3-5 ton models come standard with a Direct Drive X13, 5 speed/torque motor to provide exact performance in many applications. Belt drive motor optional on all three phase voltage models.
- Provisions for bottom or side condensate drain.
- Capable of thru-the-base or thru-the-curb electrical routing.
- Dependable time/temperature defrost logic provides a defrost cycle, if needed, every 30, 60, 90 or 120 minutes and is adjustable.
- Single-point electrical connection.
- Sloped, composite drain pan sheds water; and won't rust.
- Standardized controls and control box layout. Standardized components and controls make stocking parts and service easier.
- Clean, large, easy to use control box.
- Standard coils are copper round tube, aluminum plate fin with optional coil coatings and copper fin design.
- Large, laminated wiring and power wiring drawings which are affixed to unit make troubleshooting easy.
- Single, central terminal board for test and wiring connections.
- Fast-access, handled, panels for easy access to the blower and blower motor, control box, and compressors.
- "No-strip" screw system guides screws into the panel and captures them tightly without stripping the screw, the panel, or the unit.
- Exclusive, newly-designed indoor refrigerant header for easier maintenance and replacement.
- Standard mechanical cooling (125°F to 30°F or 52°C to –1°C).
- 2-in. (51mm) disposable filters on all units.
- High capacity refrigerant filter drier and TXV metering device on each circuit.
- High pressure switch, loss of charge switch and freeze protection adds greater unit reliability.
- Optional Staged Air Volume (SAV™) system utilizes a Variable Frequency Drive (VFD) to automatically adjust the indoor fan motor speed between cooling stages. Available on 2-stage cooling model sizes 07 to 12 with electro-mechanical controls or RTU Open controller.

Table of contents

Model number nomenclature

50HCQ MODEL NUMBER NOMENCLATURE (EXAMPLE)

Position:	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18
Example:	5	0	H	C	Q	A	0	6	A	0	A	6	–	0	B	2	A	0

Series - WeatherMaster®
50HC - Packaged Rooftop - High Efficiency

Q = Heat Pump

Refrig. Systems Options
A = One Stage Cooling Models
D = Two Stage Cooling Models

Cooling Tons
04 - 3 ton
05 - 4 ton
06 - 5 ton
07 - 6 ton
08 - 7.5 ton
09 - 8.5 ton
12 - 10 ton

Sensor Options
A = None
B = RA Smoke Detector
C = SA Smoke Detector
D = RA + SA Smoke Detector
E = CO_2
F = RA Smoke Detector and CO_2
G = SA Smoke Detector and CO_2
H = RA + SA Smoke Detector and CO_2
J = Condensate Overflow Switch
K = Condensate Overflow Switch and RA Smoke Detectors
L = Condensate Overflow Switch and RA + SA Smoke Detectors

Indoor Fan Options
0 = Electric Drive X13 Motor (04-06)
1 = Standard Static Option - Belt Drive
2 = Medium Static Option - Belt Drive
3 = High Static Option - Belt Drive
C = High Static Option with High Efficiency Motor- Belt Drive (size 12 only)

Coil Options - Round Tube/Plate Fin Condenser Coil (Outdoor - Indoor - Hail Guard)
A = Al/Cu - Al/Cu
B = Precoat Al/Cu - Al/Cu
C = E-coat Al/Cu - Al/Cu
D = E-coat Al/Cu - E-coat Al/Cu
E = Cu/Cu - Al/Cu
F = Cu/Cu - Cu/Cu
M = Al/Cu -Al/Cu — Louvered Hail Guard
N = Precoat Al/Cu - Al/Cu — Louvered Hail Guard
P = E-coat Al/Cu - Al/Cu — Louvered Hail Guard
Q = E-coat Al/Cu - E-coat Al/Cu — Louvered Hail Guard
R = Cu/Cu - Al/Cu — Louvered Hail Guard
S = Cu/Cu - Cu/Cu — Louvered Hail Guard

NOTE: On single phase (-3 voltage code) models, the following are not available as a factory-installed option:
- Coated Coils or Cu Fin Coils
- Louvered Hail Guards
- Economizer or 2 Position Damper
- Powered 115 Volt Convenience Outlet

Factory Assigned
0 = Standard
1 = LTL
2 = California Seismic Compliant - OSHPD
1 = California Seismic Compliant - OSHPD plus LTL

Electrical Options
A = None
C = Non-Fused Disconnect
D = Thru-The-Base Connections
F = Non-Fused Disconnect and Thru-The-Base Connections
G = 2-Speed Indoor Fan Controller (VFD)
J = 2-Speed Indoor Fan Controller (VFD) and Non-Fused Disconnect
K = 2-Speed Indoor Fan Controller (VFD) and Thru-The-Base Connections
M = 2-Speed Indoor Fan Controller (VFD) with Non-Fused Disconnect and Thru-The-Base Connections

Service Options
0 = None
1 = Unpowered Convenience Outlet
2 = Powered Convenience Outlet
3 = Hinged Access Panels
4 = Hinged Access Panels and Unpowered Convenience Outlet
5 = Hinged Panels and Powered Convenience Outlet

Intake / Exhaust Options
A = None
B = Temperature Economizer w/ Barometric Relief
F = Enthalpy Economizer w/ Barometric Relief
K = 2-Position Damper
U = Temperature Ultra Low Leak Economizer w/ Barometric Relief
W = Enthalpy Ultra Low Leak Economizer w/ Barometric Relief

Base Unit Controls
0 = Electro-mechanical Controls can be used with W7212 EconoMi$er® IV (Non-Fault Detection and Diagnostic
1 = PremierLink™ Controller
2 = RTU Open Multi-Protocol Controller
6 = Electro-mechanical w/ 2-speed fan and W7220 Economizer controller Controls. Can be used with W7220 EconoMi$er X (with Fault Detection and Diagnostic)

Design Revision
– = Factory Design Revision

Voltage
1 = 575/3/60
3 = 208-230/1/60
5 = 208-230/3/60
6 = 460/3/60

Capacity ratings

AHRI COOLING RATINGS

50HCQ UNIT	COOLING STAGES	NOM. CAPACITY (TONS)	NET COOLING CAPACITY (MBH)	TOTAL POWER (kW)	SEER	EER	IEER
A04	1	3.0	36,400	2.8	15.60	12.70	N/A
A05	1	4.0	47,000	3.6	15.80	12.80	N/A
A06	1	5.0	58,500	4.6	15.00	11.70	N/A
A07	1	6.0	72,000	6.0	N/A	12.00	12.8

50HCQ UNIT	COOLING STAGES	NOM. CAPACITY (TONS)	NET COOLING CAPACITY (MBH)	TOTAL POWER (kW)	SEER	EER	IEER WITH SINGLE SPEED INDOOR FAN MOTOR	IEER WITH 2-SPEED INDOOR FAN MOTOR
D07	2	6.0	70,000	5.8	N/A	12.00	14.0	15.6
D08	2	7.5	90,000	7.4	N/A	12.10	12.8	13.7
D09	2	8.5	100,000	8.3	N/A	12.00	12.5	12.9
D12	2	10.0	119,000	9.6	N/A	12.30	13.0	13.6

HEATING RATINGS

50HCQ UNIT	HSPF	HEATING, LOW AT 17°F (-8°C) AMBIENT		HEATING, HIGH AT 47°F (8°C) AMBIENT	
		Capacity (BTUH)	COP	Capacity (BTUH)	COP
A04	8.00	18,400	N/A	34,000	N/A
A05	8.10	23,800	N/A	46,000	N/A
A06	8.20	28,600	N/A	55,000	N/A
A07	N/A	39,000	2.40	70,000	3.40
D07	N/A	38,000	2.40	69,000	3.40
D08	N/A	47,000	2.40	84,000	3.50
D09	N/A	56,000	2.26	100,000	3.40
D12	N/A	65,000	2.40	116,000	3.50

LEGEND

AHRI — Air-Conditioning, Heating and Refrigeration Institute
ASHRAE — American Society of Heating, Refrigerating and Air-Conditioning Engineers
COP — Coefficient of Performance
EER — Energy Efficiency Ratio
HSPF — Heating Seasonal Performance Factor
IECC — International Energy Conservation Code
IEER — Integrated Energy Efficiency Ratio
N/A — Not applicable
SEER — Seasonal Energy Efficiency Ratio

NOTES:

1. Rated and certified under AHRI Standard 210/240 or 340/360, as appropriate.
2. Ratings are based on:
   Cooling Standard: 80°F (27°C) db, 67°F (19°C) wb indoor air temp and 95°F db outdoor air temp.
   IEER Standard: A measure that expresses cooling partload EER efficiency for commercial unitary air conditioning and heat pump equipment on the basis of weighted operation at variable load capacities.
3. All 50HCQ units comply with ASHRAE 90.1-2016, DOE-2018 and IECC[1] 2015 minimum efficiency requirements when equipped with the SAV (staged air volume) option.

AHRI CERTIFIED www.ahridirectory.org
Unitary Small AC
AHRI Standard 210/240
Certification applies only when the complete system is listed with AHRI.

1. IECC is a registered trademark of International Code Council, Inc.

MINIMUM - MAXIMUM AIRFLOWS (CFM) COOLING AND ELECTRIC HEAT

UNIT	COOLING			ELECTRIC HEATERS		
	Minimum CFM	Minimum CFM 2-Speed Fan Motor (at High Speed)	Minimum CFM 2-Speed Fan Motor (at Low Speed)	Maximum CFM	Minimum CFM	Maximum CFM
50HCQA04	900	N/A	N/A	1500	900	1500
50HCQA05	1200	N/A	N/A	2000	1200	2000
50HCQA06	1500	N/A	N/A	2500	1500	2500
50HCQA07	1800	N/A	N/A	3000	1800	3000
50HCQD07	1800	1800	1200	3000	1800	3000
50HCQD08	2250	2250	1500	3750	2250*	3750
50HCQD09	2550	2873	1915	4250	2252*	4250
50HCQD12	3000	3380	2253	5000	3000*	5000

* Minimum electric heat CFM exceptions:

UNIT	UNIT VOLTAGE	HEATER kW	UNIT CONFIGURATION	REQUIRED MINIMUM CFM
50HCQD08 50HCQD09	575	17.0	Horizontal or Vertical	2800
		34.0		2350
50HCQD12	230	50.0	Vertical	3550
		50.0	Horizontal	3420
		43.5	Horizontal or Vertical	3040
	575	50.0	Vertical	3150
		33.5	Vertical	3520
		33.5	Horizontal	3420
		26.5	Vertical	3610

SOUND PERFORMANCE

50HCQ UNIT	OUTDOOR SOUND (dB) AT 60 Hz								
	A-Weighted	63	125	250	500	1000	2000	4000	8000
A04	76	51.8	69.0	64.6	67.8	70.7	63.8	60.9	59.0
A05	79	56.1	69.6	68.7	72.5	72.8	68.9	65.0	61.2
A06	79	57.7	66.6	68.7	72.9	74.5	71.1	67.6	62.6
A07	81	86.7	82.7	79.1	78.4	75.4	71.2	67.8	62.9
D07	81	86.7	82.7	79.1	78.4	75.4	71.2	67.8	62.9
D08	83	87.3	81.6	79.7	80.6	79.0	73.5	69.2	66.1
D09	87	61.7	74.7	77.4	82.6	84.9	81.9	78.8	75.9
D12	83	61.0	67.3	75.1	77.7	78.1	75.5	71.2	66.7

LEGEND

dB —Decibel

NOTES:

1. Outdoor sound data is measure in accordance with AHRI standard 270.
2. Measurements are expressed in terms of sound power. Do not compare these values to sound pressure values because sound pressure depends on specific environmental factors which normally do not match individual applications. Sound power values are independent of the environment and therefore more accurate.
3. A-weighted sound ratings filter out very high and very low frequencies, to better approximate the response of “average” human ear. A-weighted measurements for Carrier units are taken in accordance with AHRI standard 270.

Physical data

PHYSICAL DATA (COOLING) — 3-6 TONS

		50HCQA04	50HCQA05	50HCQA06	50HCQA07	50HCQD07
REFRIGERATION SYSTEM						
# Circuits / # Comp. / Type		1 / 1 / Scroll	1 / 1 / Scroll	1 / 1 / 1-Stage Scroll	1 / 1 / 1-Stage Scroll	1 / 1 / 2-Stage Scroll
Puron® (R-410A) Refrigerant Charge per circuit A/B (lbs-oz)		12 - 8 / -	15 - 8 / -	17 - 8 / -	15 - 8/ -	18 - 8 / -
Metering device		TXV	TXV	TXV	TXV	TXV
High-press. Trip / Reset (psig)		630 / 505	630 / 505	630 / 505	630 / 505	630 / 505
Loss of Charge Press. Trip / Reset (psig)		27 / 44	27 / 44	27 / 44	27 / 44	27 / 44
EVAP. COIL						
Material - Tube / Fin		Cu / Al	Cu / Al	Cu / Al	Cu / Al	Cu / Al
Coil Type (Tube Dia.)		3/8-in. RTPF	3/8-in. RTPF	3/8-in. RTPF	3/8-in. RTPF	3/8-in. RTPF
Rows / FPI		3 / 15	3 / 15	3 / 15	3 / 15	3 / 15
Total face area (ft^2)		5.5	7.3	7.3	8.9	8.9
Condensate drain conn. size		3/4-in.	3/4-in.	3/4-in.	3/4-in.	3/4-in.
EVAPORATOR FAN AND MOTOR						
Standard Static 1-Phase	Motor Qty. / Driver Type	1 / Direct	1 / Direct	1 / Direct	—	—
	Max BHP	1.0	1.0	1.0	—	—
	RPM range	600-1200	600-1200	600-1200	—	—
	Motor frame size	48	48	48	—	—
	Fan Qty. / Type	1 / Centrifugal	1 / Centrifugal	1 / Centrifugal	—	—
	Fan Dia. x Length (in.)	10 x 10	10 x 10	10 x 11	—	—
Standard Static 3-Phase	Motor Qty. / Driver Type	1 / Direct	1 / Direct	1 / Direct	1 / Belt	1 / Belt
	Max BHP	1.0	1.0	1.0	1.2	1.2
	RPM range	600-1200	600-1200	600-1200	489-747	489-652
	Motor frame size	48	48	48	56	56
	Fan Qty. / Type	1 / Centrifugal	1 / Centrifugal	1 / Centrifugal	1 / Centrifugal	1 / Centrifugal
	Fan Dia. x Length (in.)	10 x 10	10 x 10	11 x 10	15 x 15	15 x 15
Medium Static 3-Phase	Motor Qty. / Driver Type	1 / Belt	1 / Belt	1 / Belt	1 / Belt	1 / Belt
	Max BHP	1.5	1.5	2.0	2.9	2.9
	RPM range	819-1251	920-1303	1066-1380	733-949	591-838
	Motor frame size	56	56	56	56	56
	Fan Qty. / Type	1 / Centrifugal	1 / Centrifugal	1 / Centrifugal	1 / Centrifugal	1 / Centrifugal
	Fan Dia. x Length (in.)	10 x 10	10 x 10	10 x 10	15 x 15	15 x 15
High Static 3-Phase	Motor Qty. / Driver Type	1 / Belt	1 / Belt	1 / Belt	1 / Belt	1 / Belt
	Max BHP	2.0	2.0	2.9	4.0	2.9
	RPM range	1035-1466	1035-1466	1208-1550	909-1102	838-1084
	Motor frame size	56	56	56	45	145
	Fan Qty. / Type	1 / Centrifugal	1 / Centrifugal	1 / Centrifugal	1 / Centrifugal	1 / Centrifugal
	Fan Dia. x Length (in.)	10 x 10	10 x 10	10 x 10	15 x 15	15 x 15
CONDENSER COIL						
Material (Tube/Fin)		Cu / Al	Cu / Al	Cu / Al	Cu / Al	Cu / Al
Coil type		3/8-in RTPF	3/8-in RTPF	3/8-in RTPF	3/8-in RTPF	3/8-in RTPF
Rows / FPI		2 / 17	2 / 17	2 / 17	2 / 17	2 / 17
Total Face Area (ft^2)		16.5	21.3	21.3	20.5	20.5
COND. FAN / MOTOR						
Qty / Motor Drive Type		1 / direct	1 / direct	1 / direct	2 / direct	2 / direct
Motor HP / RPM		1/8 / 825	1/4 / 1100	1/4 / 1100	1/4 / 1100	1/4 / 1100
Fan diameter (in.)		22	22	22	22	22
FILTERS						
RA Filter # / Size (in.)		2 / 16 x 25 x 2	4 / 16 x 16 x 2	4 / 16 x 16 x 2	4 / 16 x 20 x 2	4 / 16 x 20 x 2
OA inlet screen # / Size (in.)		1 / 20 x 24 x 1	1 / 20 x 24 x 1	1 / 20 x 24 x 1	1 / 20 x 36 x 1	1 / 20 x 36 x 1

PHYSICAL DATA (COOLING) — 7.5-10 TONS

		50HCQD08	50HCQD09	50HCQD12
REFRIGERATION SYSTEM				
# Circuits / # Comp. / Type		2 / 2 / Scroll	2 / 2 / Scroll	2 / 2 / Scroll
Puron® (R-410A) Refrigerant Charge per circuit A/B (lbs-oz)		11 - 12 / 11 - 12	14-1/14-4	16-3/17-3
Metering device		TXV	TXV	TXV
High-press. Trip / Reset (psig)		630 / 505	630 / 505	630 / 505
Loss of Charge Press. Trip / Reset (psig)		27 / 44	27 / 44	27 / 44
EVAP. COIL		50 / 100	50 / 100	50 / 100
Material - Tube / Fin				
Coil Type (Tube Dia.)		Cu / Al	Cu / Al	Cu / Al
Rows / FPI		3/8-in. RTPF	3/8-in. RTPF	3/8-in. RTPF
Total face area (ft²)		4 / 15	4 / 15	3 / 15
Condensate drain conn. size		11.1	11.1	17.3
EVAPORATOR FAN AND MOTOR		3/4-in.	3/4-in.	3/4-in.
Standard Static 1-Phase	Motor Qty. / Driver Type			
	Max BHP	1 / Belt	1 / Belt	1 / Belt
	RPM range	1.2	1.7	1.9
	Motor frame size	518-733	460-652	440-609
	Fan Qty. / Type	56	56	56
	Fan Dia. x Length (in.)	1 / Centrifugal	1 / Centrifugal	1 / Centrifugal
Standard Static 3-Phase	Motor Qty. / Driver Type	15 x 15	15 x 15	18 x 18
	Max BHP	1 / Belt	1 / Belt	1 / Belt
	RPM range	1.7	2.9	2.9
	Motor frame size	690-936	591-838	547-757
	Fan Qty. / Type	56	56	56
	Fan Dia. x Length (in.)	1 / Centrifugal	1 / Centrifugal	1 / Centrifugal
Medium Static 3-Phase	Motor Qty. / Driver Type	15 X 15	15 X 15	18 x 18
	Max BHP	1 / Belt	1 / Belt	1 / Belt
	RPM range	2.8	2.8	6.1
	Motor frame size	838-1084	838-1084	762-963
	Fan Qty. / Type	56	56	S184T
	Fan Dia. x Length (in.)	1 / Centrifugal	1 / Centrifugal	1 / Centrifugal
High Static 3-Phase	Motor Qty. / Driver Type	15 X 15	15 X 15	18 x 18
	Max BHP	—	—	1 / Belt
	RPM range	—	—	6.5/6.9/7.0/8.3*
	Motor frame size	—	—	762-963
	Fan Qty. / Type	—	—	S184T
	Fan Dia. x Length (in.)	—	—	1 / Centrifugal
CONDENSER COIL		—	—	18 x 18
Material (Tube/Fin)				
Coil type		Cu / Al	Cu / Al	Cu / Al
Rows / FPI		3/8-in RTPF	3/8-in RTPF	3/8-in RTPF
Total Face Area (ft²)		2 / 17	3 / 17	2 / 17
COND. FAN / MOTOR		25.1	25.1	46.2
Qty / Motor Drive Type				
Motor HP / RPM		2 / direct	1 / direct	3 / direct
Fan diameter (in.)		1/4 / 1100	1 / 1175	1 / 1100
FILTERS		22	30	22
RA Filter # / Size (in.)				
OA inlet screen # / Size (in.)		4 / 20 x 20 x 2	4 / 20 x 20 x 2	6 / 18 x 24 x 2
REFRIGERATION SYSTEM		1 / 20 x 24 x 1	1 / 20 x 24 x 1	2 / 24 x 27 x 1 (Vert) 1 / 30 x 39 x 1 (Horiz)

* On Size 12 units, Max BHP for the High Static motor varies with the motor's voltage; see the table below.

Voltage	BHP
208	6.5
230	6.9
460	7.0
575	8.3

Options and accessories

FACTORY-INSTALLED AND FIELD-INSTALLED ACCESSORIES

CATEGORY	ITEM	FACTORY INSTALLED OPTION	FIELD INSTALLED ACCESSORY
CABINET	Hinged access doors	X	
	Thru-the-base electrical connections	X	X
	Supply duct kit-Horizontal air applications (size 12 only)		X
COIL OPTIONS	Cu/Cu indoor and/or outdoor coils [1]	X	
	Pre-coated outdoor coils [1]	X	
	Premium, E-coated outdoor coils [1]	X	
CONDENSER PROTECTION	Condenser coil hail guard (louvered design) [1]	X	X
CONTROLS	Thermostats, temperature sensors, and subbases		X
	PremierLink™ DDC communicating controller [2]	X	X
	RTU Open Multi-protocol controller	X	
	Smoke detector (supply and/or return air)	X	
	Horn/Strobe Annunciator [3]		X
	Time Guard II compressor delay control circuit		X
	Phase Monitor		X
	Condensate Overflow switch	X	X
ECONOMIZERS & OUTDOOR AIR DAMPERS	EconoMi$er® IV for electro–mechanical controls – Non FDD (Standard air leak damper models) [1, 4]	X	X
	EconoMi$er2 for DDC controls, complies with FDD (Standard and Ultra Low Leak air damper models) [1, 5]	X	X
	Motorized 2 position outdoor air damper [1, 2]	X	X
	Manual outdoor air damper (25% and 50%) [2]		X
	Barometric relief [6]	X	X
	Power exhaust		X
	EconoMi$er X for electro–mechanical controls, complies with FDD (Standard and Ultra Low Leak air damper models) [1, 4]	X	X
ECONOMIZER SENSORS & IAQ DEVICES	Single dry bulb temperature sensors [7]	X	X
	Differential dry bulb temperature sensors [7]		X
	Single enthalpy sensors [7]	X	X
	Differential enthalpy sensors [7]		X
	CO_2 sensor (wall, duct, or unit mounted) [7]	X	X
ELECTRIC HEAT	Electric Resistance Heaters		X
	Single Point Kit		X
INDOOR MOTOR & DRIVE	Multiple motor and belt drive packages	X	
	Electric Drive, X13, 5-speed/torque (3-5 ton)	X	
	Staged Air Vol (SAV™) system with VFD controller (2-stage cool only with electrical mechanical and RTU Open controls)	X	
	Display Kit for SAV system with VFD		X
LOW AMBIENT CONTROL	Motormaster® head pressure controller [8]		X
POWER OPTIONS	Convenience outlet (powered) [6]	X	
	Convenience outlet (unpowered): 15 amp factory-installed 20 amp field-installed	X	X
	Non–fused disconnect [9]	X	
ROOF CURBS	Roof curb 14-in. (356 mm)		X
	Roof curb 24-in. (610 mm)		X

NOTES:

1. Not available as a factory-installed option on single phase (208-230/1/60) models. Use field-install accessory where available.
2. Not available with SAV.
3. Requires a field-supplied 24V transformer for each application. See price pages for details.
4. FDD (Fault Detection and Diagnostic) capability per California Title 24 section 120.2.
5. Models with RTU Open DDC controller comply with California Title 24 Fault Detection and Diagnostic (FDD). PremierLink controller is not FDD.
6. Included with economizer.
7. Sensors for optimizing economizer.
8. See application data for assistance.
9. Non-fused disconnect switch cannot be used when unit electrical rating exceeds:
   04-09 sizes: 208-230/1/60 and 208-230/3/60 = 80 amps (FLA)
   460/3/60 and 575/3/60 = 80 amps (FLA)
   12 size: 208-230/3/60 = 115 amps (MCA)
   460/3/60 and 575/3/60 = 100 amps (FLA)
   Carrier RTUBuilder automatically selects the amps limitations.

Economizer

Economizers can reduce operating costs. They bring in fresh, outside air for ventilation; and provide cool outside air to cool your building. This also is the preferred method of low ambient cooling. When coupled to CO_2 sensors, economizers can limit the ventilation air to only that amount required.

Economizers are available, installed and tested by the factory, with either enthalpy or temperature dry-bulb inputs. There are also models for electro-mechanical, direct digital controllers and single speed fan or 2-speed indoor fan motors. Additional sensors are available as accessories to optimize the economizer.

Economizers include gravity controlled barometric relief that helps equalize building pressure and ambient air pressures. This can be a cost effective solution to prevent building pressurization. Economizers are available in Ultra Low Leak and standard low leak versions.

CO_2 sensor

The CO_2 sensor works with the economizer to intake only the correct amount of outside air for ventilation. As occupants fill your building, the CO_2 sensor detects their presence through increasing CO_2 levels, and opens the economizer appropriately.

When the occupants leave, the CO_2 levels decrease, and the sensor appropriately closes the economizer. This intelligent control of the ventilation air, called Demand Controlled Ventilation (DCV) reduces the overall load on the rooftop, saving money.

Smoke detectors

Trust the experts. Smoke detectors make your application safer and your job easier. Carrier smoke detectors immediately shut down the rooftop unit when smoke is detected. They are available, installed by the factory, for supply air, return air, or both.

Louvered hail guards

Sleek, louvered panels protect the condenser coil from hail damage, foreign objects, and incidental contact.

Convenience outlet (powered or unpowered)

Reduce service and/or installation costs by including a convenience outlet in your specification. Carrier will install this service feature at our factory. Provides a convenient, 15 amp, 115v GFCI receptacle with "Wet in Use" cover. The "powered" option allows the installer to power the outlet from the line side of the disconnect or load side as required by code. The "unpowered" option is to be powered from a separate (non-unit) 115/120v power source. The unpowered convenience outlet is available as a 15 amp factory-installed option or a 20 amp field-installed accessory.

The 20 amp unpowered convenience outlet kit provides a flexible installation method which allows code compliance for height requirements of the GFCI outlet from the finished roof surface as well as the capability to relocate the outlet to a more convenient location, if necessary.

Non-fused disconnect

This OSHA-compliant, factory-installed, safety switch allows a service technician to locally secure power to the rooftop. When selecting a factory-installed non-fused disconnect, note they are sized for the unit as ordered from the factory. The sizing of these do not accommodate field-installed items such as power exhaust devices, etc.

Power exhaust pressure relief

Superior internal building pressure control. This field-installed accessory may eliminate the need for costly, external pressure control fans.

PremierLink™ DDC controller

This CCN (Carrier Comfort Network®) controller regulates the rooftop's performance to tighter tolerances and expanded limits, as well as facilitates zoning systems and digital accessories. It also unites a Carrier HVAC equipment together on one, coherent CCN network. The PremierLink controller can be factory-installed, or easily field-installed.

RTU Open, multi-protocol controller

Connect the rooftop to an existing BAS (building automation system) without needing complicated translators or adapter modules using the RTU Open controller. The RTU Open controller speaks the 4 most common building automation system languages (BACnet[1], Modbus[2], N2, and LonWorks[3]). Use this controller when you have an existing BAS. Besides the 4 protocols, it also communicates with a Carrier Open system (i-Vu® and VVT®).

Time guard II control circuit

This accessory protects your compressor by preventing short-cycling in the event of some other failure, prevents the compressor from restarting for 30 seconds after stopping. Not required with PremierLink™ controller, RTU Open controller, or authorized commercial thermostats.

Motorized 2-position damper

The new Carrier 2-position, motorized outdoor air damper admits up to 100% outside air. Using reliable, gear-driven technology, the 2-position damper opens to allow ventilation air and closes when the rooftop stops, stopping unwanted infiltration. Not available with Staged Air Volume (SAV™) models.

Manual OA damper

Manual outdoor air dampers are an economical way to bring in ventilation air. The dampers are available in 25% and 50% versions. Not available with Staged Air Volume (SAV) models.

Electric heaters

Carrier offers a full line of field-installed accessory heaters. The heaters are very easy to use and install. All are pre-engineered and certified.

Hinged access panels

Allows access to unit's major components with specifically designed hinged access panels. Panels are: filter, control box, fan motor and compressor.

Staged air volume (SAV™) indoor fan speed system

Carrier's Staged Air Volume (SAV) system saves energy and installation time by utilizing a Variable Frequency Drive (VFD) to automatically adjust the indoor fan motor speed in sequence with the units cooling operation. Per ASHRAE 90.1-2016 and IECC-2015 standards, during the first stage of cooling operation the VFD will adjust the fan motor to provide 66% of the total cfm established for the

1. BACnet is a registered trademark of ASHRAE (American Society of Heating, Refrigerating and Air-Conditioning Engineers).
2. Modbus is a registered trademark of Schneider Electric.
3. LonWorks is a registered trademark of Echelon Corporation.

unit. When a call for the second stage of cooling is required, the VFD will allow the total cfm for the unit established (100%). During the heating mode the VFD will allow total design cfm (100%) operation and during the ventilation mode the VFD will allow operation to 66% of total cfm.

Compared to single speed indoor fan motor systems, Carrier's SAV system can save substantial energy, 25%+, versus single speed indoor fan motor systems.

IMPORTANT: Data based on .10 ($/kWh) in an office application utilizing Carrier's HAP 4.6 simulation software program.

The VFD used in Carrier's SAV system has soft start capabilities to slowly ramp up the speeds, thus eliminating any high inrush air volume during initial start-up. It also has internal over current protection for the fan motor and a field-installed display kit that allows adjustment and in depth diagnostics of the VFD.

This SAV system is available on models with 2-stage cooling operation with electrical mechanical or RTU Open (multi protocol) controls. Both space sensor and conventional thermostats controls can be used to provide accurate control in any application.

The SAV system is very flexible for initial fan performance set up and adjustment. The standard factory shipped VFD is pre-programmed to automatically stage the fan speed between the first and second stage of cooling. The unit fan performance static pressure and cfm can be easily adjusted using the traditional means of pulley adjustments. The other means to adjust the unit static and cfm performance is to utilize the field-installed Display Kit and adjust the frequency and voltage in the VFD to required performance requirements. In either case, once set up, the VFD will automatically adjust the speed between the cooling stage operations.

Motormaster® head pressure controller

The Motormaster motor controller is a low ambient, head pressure controller kit that is designed to maintain the unit's condenser head pressure during periods of low ambient cooling operation. This device should be used as an alternative to economizer free cooling when economizer usage is either not appropriate or desired. The Motormaster will either cycle the outdoor fan motors or operate them at reduced speed to maintain the unit operation, depending on the model.

Alternate motors and drives

Some applications need larger horsepower motors, some need more airflow, and some need both. Regardless of the case, your Carrier expert has a factory-installed combination to meet your application. A wide selection of motors and pulleys (drives) are available, factory-installed, to handle nearly any application.

Thru-the-base connections

Thru-the-base connections, available as either an accessory or as a factory option, are necessary to ensure proper connection and seal when routing wire and piping through the rooftop's basepan and curb. These couplings eliminate roof penetration and should be considered for main power lines, as well as control power.

Condenser overflow switch (factory-installed option)

This sensor and related controller monitors the condensate level in the drain pan and shuts down compression operation when overflow conditions occur. It includes:

- Indicator light — solid red (more than 10 seconds on water contact — compressors disabled), blinking red (sensor disconnected)
- 10 second delay to break — eliminates nuisance trips from splashing or waves in pan (sensor needs 10 seconds of constant water contact before tripping)
- Disables the compressor(s) operation when condensate plug is detected, but still allows fans to run for Economizer.

California OSHPD Seismic Certification Label

Units meet the seismic requirements of the International Code Council Evaluation Service (ICC-ES) document AC156 (Acceptance Criteria for Seismic Qualification by Shake-Table Testing of Nonstructural Components and Systems) and per International Building Code (IBC 2009) at an SDS (g) value of 2.00 z/h=1.0, Ip=1.5 and certified by independent structural engineers. A certification label is applied to the unit that meets the CA OSHPD Special Seismic Certification pre-approval labeling requirements on the external chassis of the unit.

OSHPD not available on units with factory-installed hail guards.

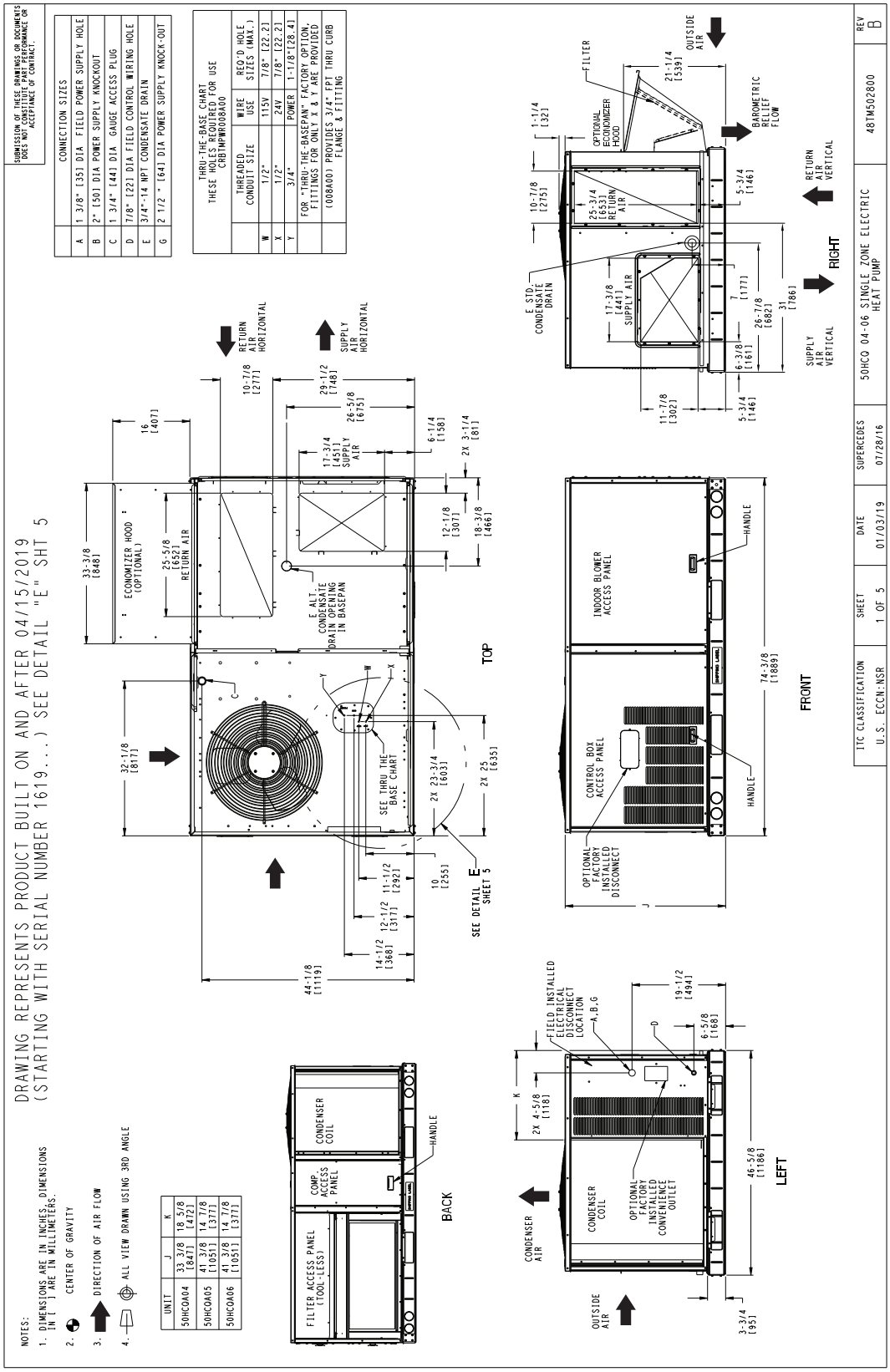
OPTIONS AND ACCESSORIES — WEIGHT ADDERS

BASE UNIT WITH OPTIONS AND ACCESSORIES (WEIGHT ADDERS)	50HCQ MAX WEIGHT ADDER													
	04		05		06		07		08		09		12	
	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg
Power Exhaust - vertical	50	23	50	23	50	23	50	23	75	34	75	34	85	39
Power Exhaust - horizontal	30	14	30	14	30	14	30	14	30	14	30	14	75	34
EconoMi$er® (IV, X, or 2)	50	23	50	23	50	23	50	23	75	34	75	34	115	52
Two Position damper	39	18	39	18	39	18	39	18	58	26	58	26	65	29
Manual Dampers	12	5	12	5	12	5	12	5	18	8	18	8	25	11
Hail Guard (louvered)	16	7	16	7	16	7	16	7	34	15	34	15	45	20
Cu/Cu Condenser Coil	35	16	35	16	35	16	95	43	95	43	95	43	160	73
Cu/Cu Cond. and Evaporator Coils	60	27	60	27	90	41	165	75	140	64	195	88	280	127
Roof Curb 14-in. (356 mm)	115	52	115	52	115	52	143	65	143	65	143	65	180	82
Roof Curb 24-in. (610 mm)	197	89	197	89	197	89	245	111	245	111	245	111	255	116
CO_2 sensor	5	2	5	2	5	2	5	2	5	2	5	2	5	2
Electric Heater	30	14	30	14	30	14	30	14	45	20	45	20	25	11
Single Point Kit	10	5	10	5	10	5	10	5	12	5	12	5	25	11
Optional Indoor Motor / Drive	10	5	10	5	10	5	10	5	15	7	15	7	45	20
Motormaster® Controller	35	16	35	16	35	16	35	16	35	16	35	16	35	16
Return Smoke Detector	5	2	5	2	5	2	5	2	5	2	5	2	5	2
Supply Smoke Detector	5	2	5	2	5	2	5	2	5	2	5	2	5	2
Non-Fused Disconnect	15	7	15	7	15	7	15	7	15	7	15	7	15	7
Powered Convenience Outlet	35	16	35	16	35	16	35	16	35	16	35	16	35	16
Non-Powered Convenience Outlet	5	2	5	2	5	2	5	2	5	2	5	2	5	2
Enthalpy Sensor	2	1	2	1	2	1	2	1	2	1	2	1	2	1
Differential Enthalpy Sensor	3	1	3	1	3	1	3	1	3	1	3	1	3	1
SAV™ System with VFD	—	—	—	—	—	—	20	9	20	9	20	9	20	9

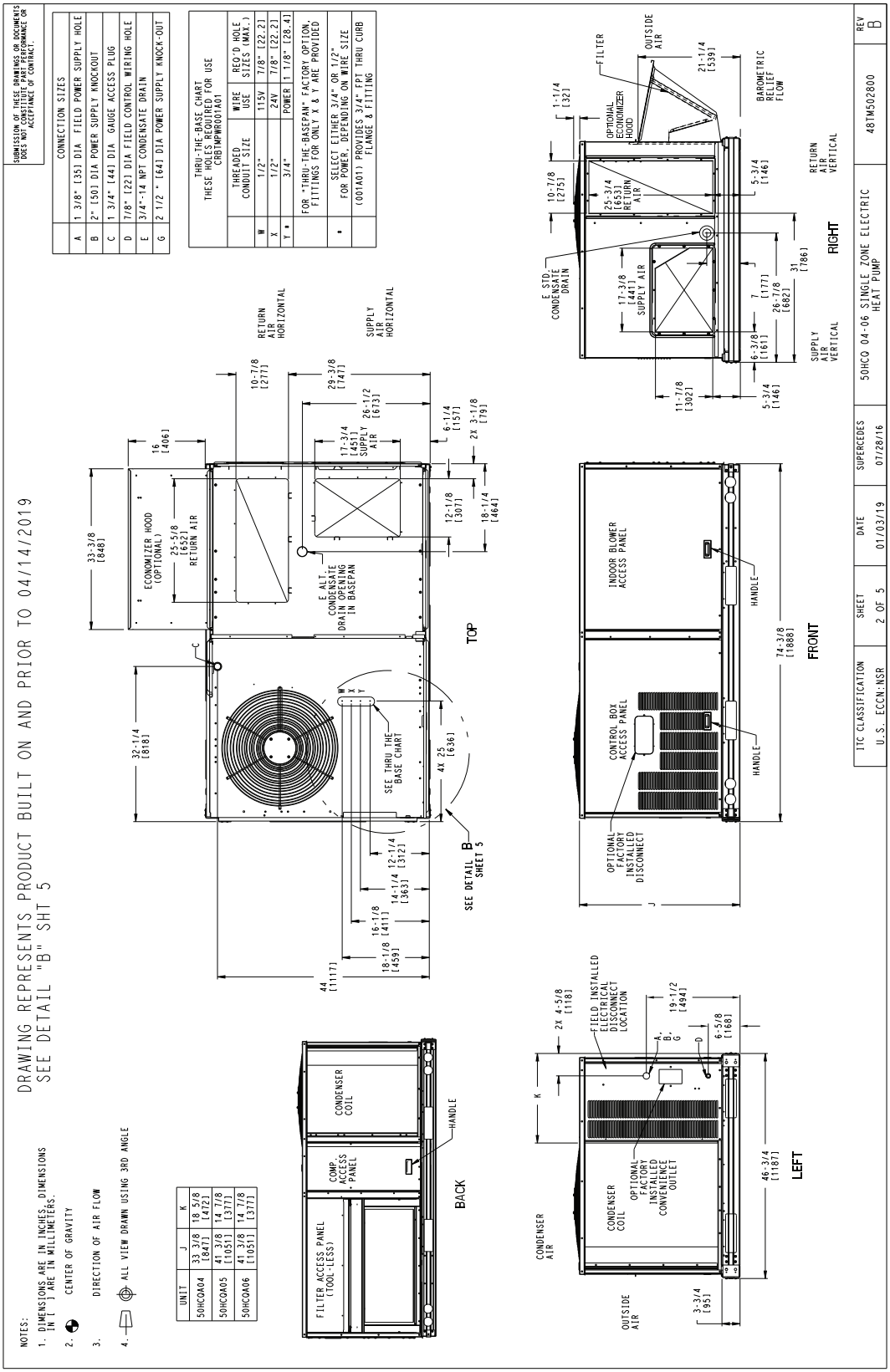
NOTE: Where multiple variations are available, the heaviest combination is listed.

Base unit dimensions

UNIT DIMENSIONAL DRAWING - UNIT SIZES 04-06 (UNITS BUILT ON AND AFTER 4/15/2019)

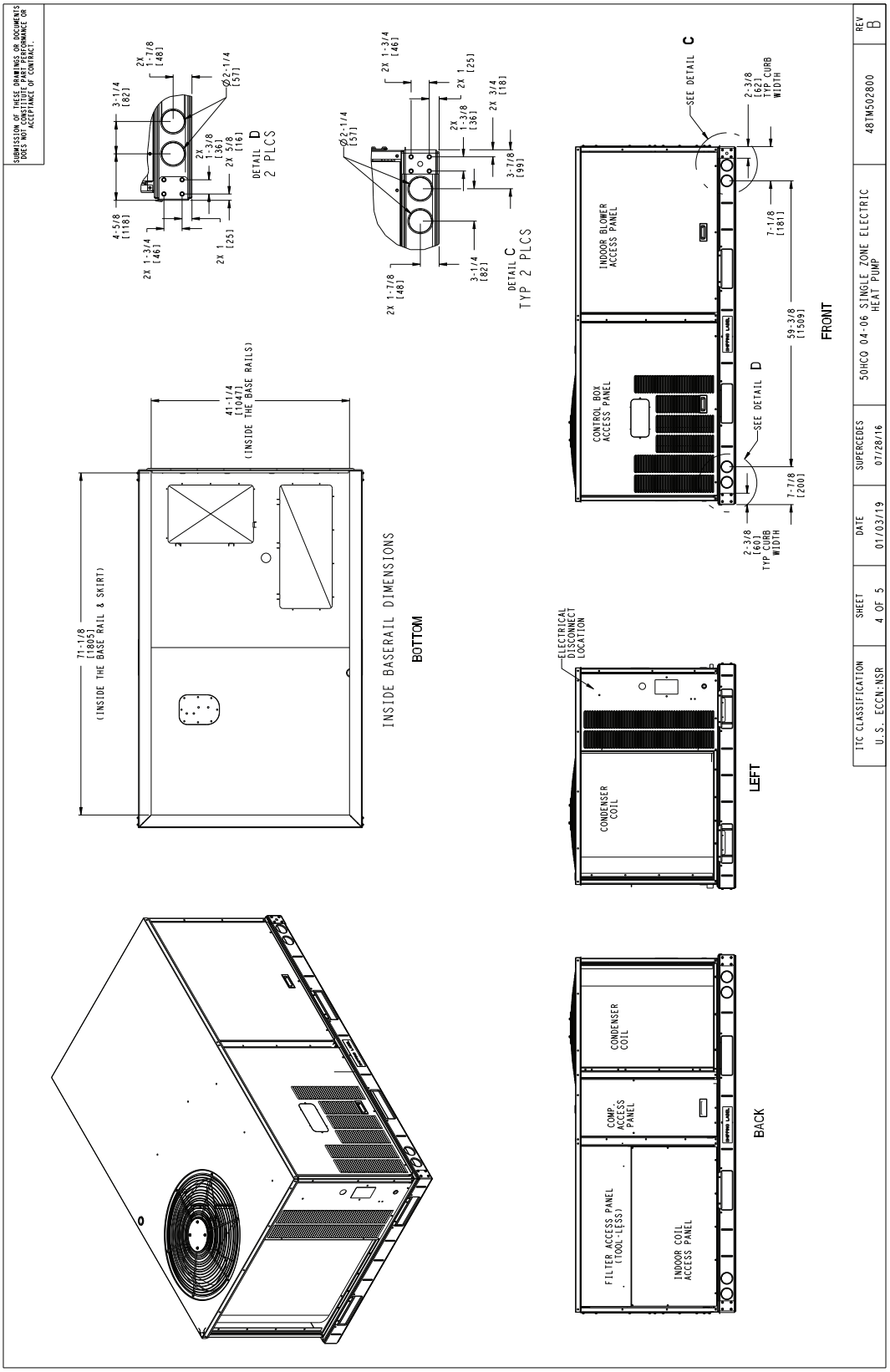


UNIT DIMENSIONAL DRAWING - UNIT SIZES 04-06 (UNITS BUILT ON AND PRIOR TO 4/14/2019)

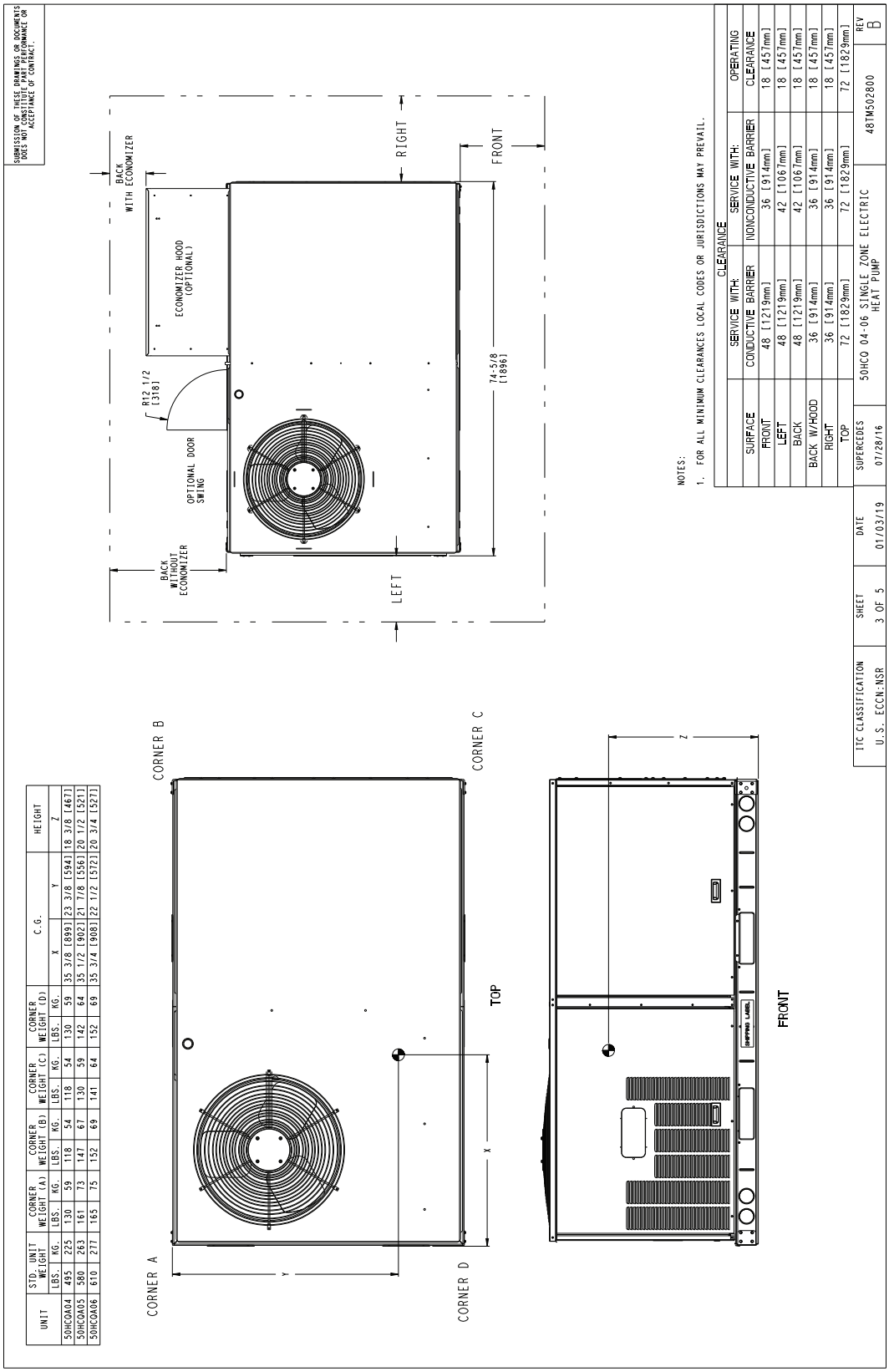


Base unit dimensions (cont)

UNIT DIMENSIONAL DRAWING - UNIT SIZES 04-06 BACK VIEW AND CONDENSATE DRAIN LOCATION



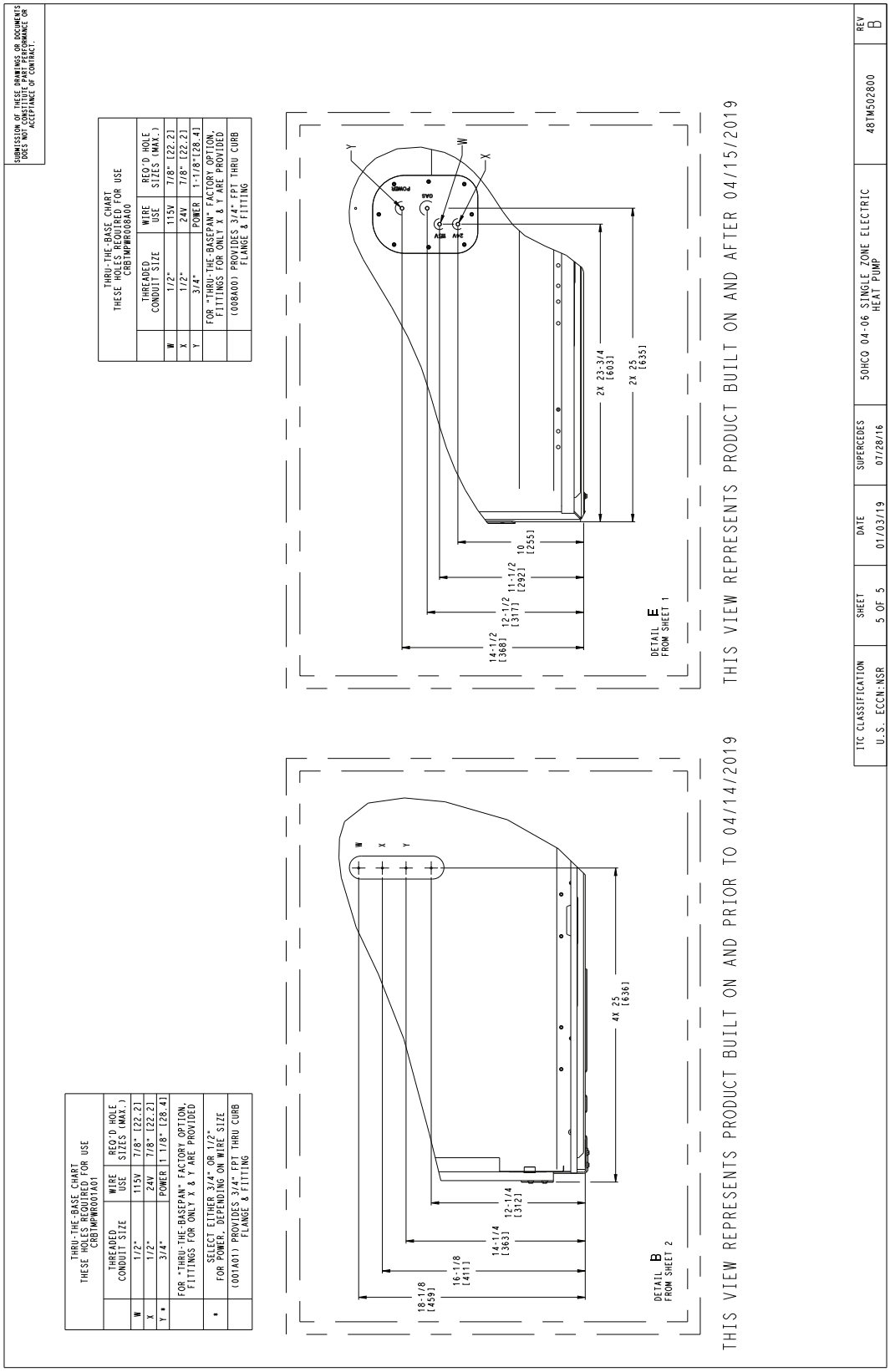
UNIT DIMENSIONAL DRAWING - UNIT SIZES 04-06 CORNER WEIGHTS AND CLEARANCES



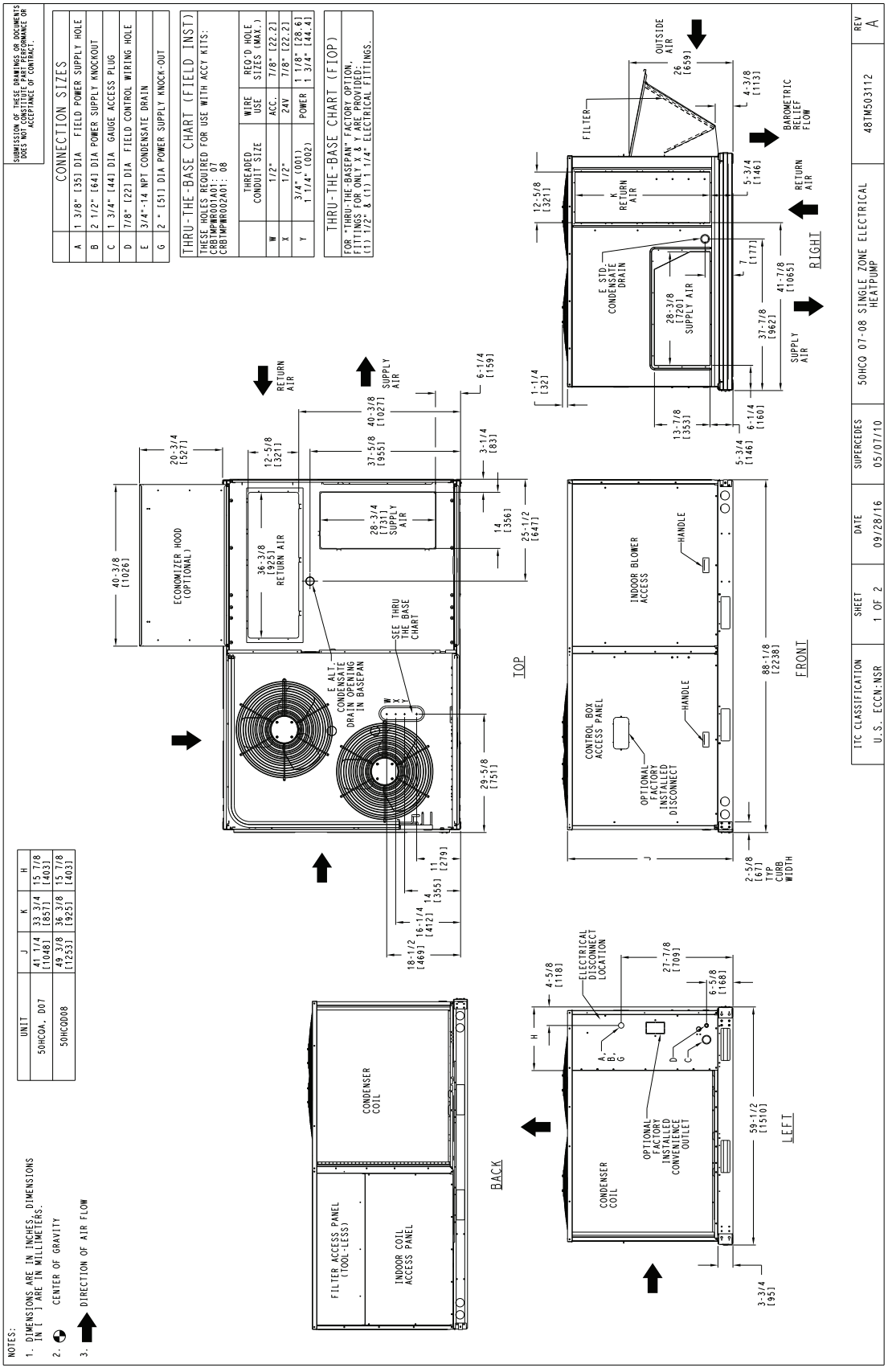
UNIT	STD. UNIT WEIGHT		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		HEIGHT
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
50HCQA04	495	225	130	59	118	54	118	54	130	59	35 3/8 [899]	23 3/8 [594]	18 3/8 [467]
50HCQA05	580	263	161	73	147	67	130	59	142	64	35 1/2 [902]	21 7/8 [556]	20 1/2 [521]
50HCQA06	610	277	165	75	152	69	141	64	152	69	35 3/4 [908]	22 1/2 [572]	20 3/4 [527]

Base unit dimensions (cont)

UNIT DIMENSIONAL DRAWING - UNIT SIZES 04-06 THRU-THE-BASE CONNECTIONS

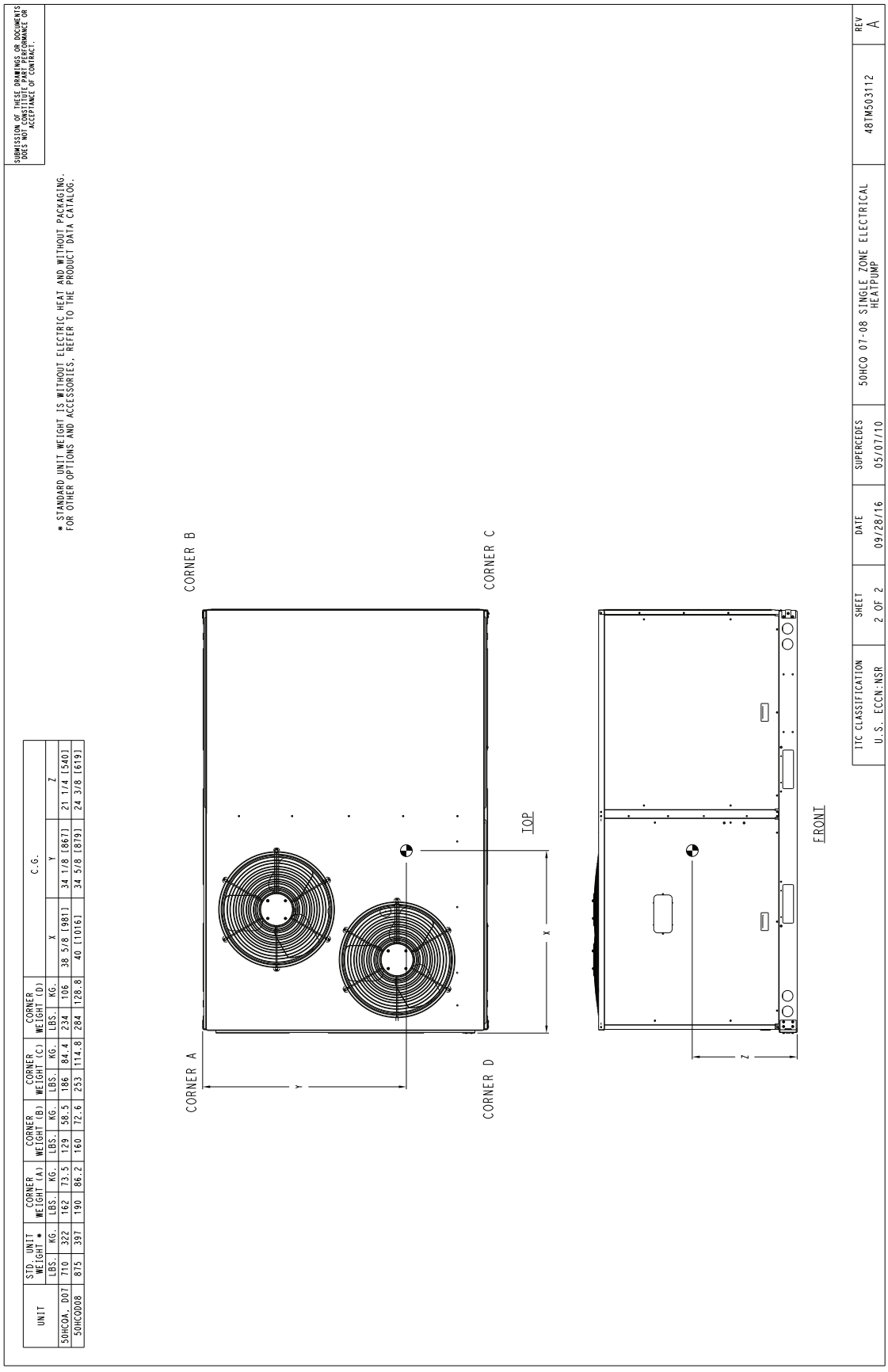


UNIT DIMENSIONAL DRAWING - UNIT SIZES 07-08

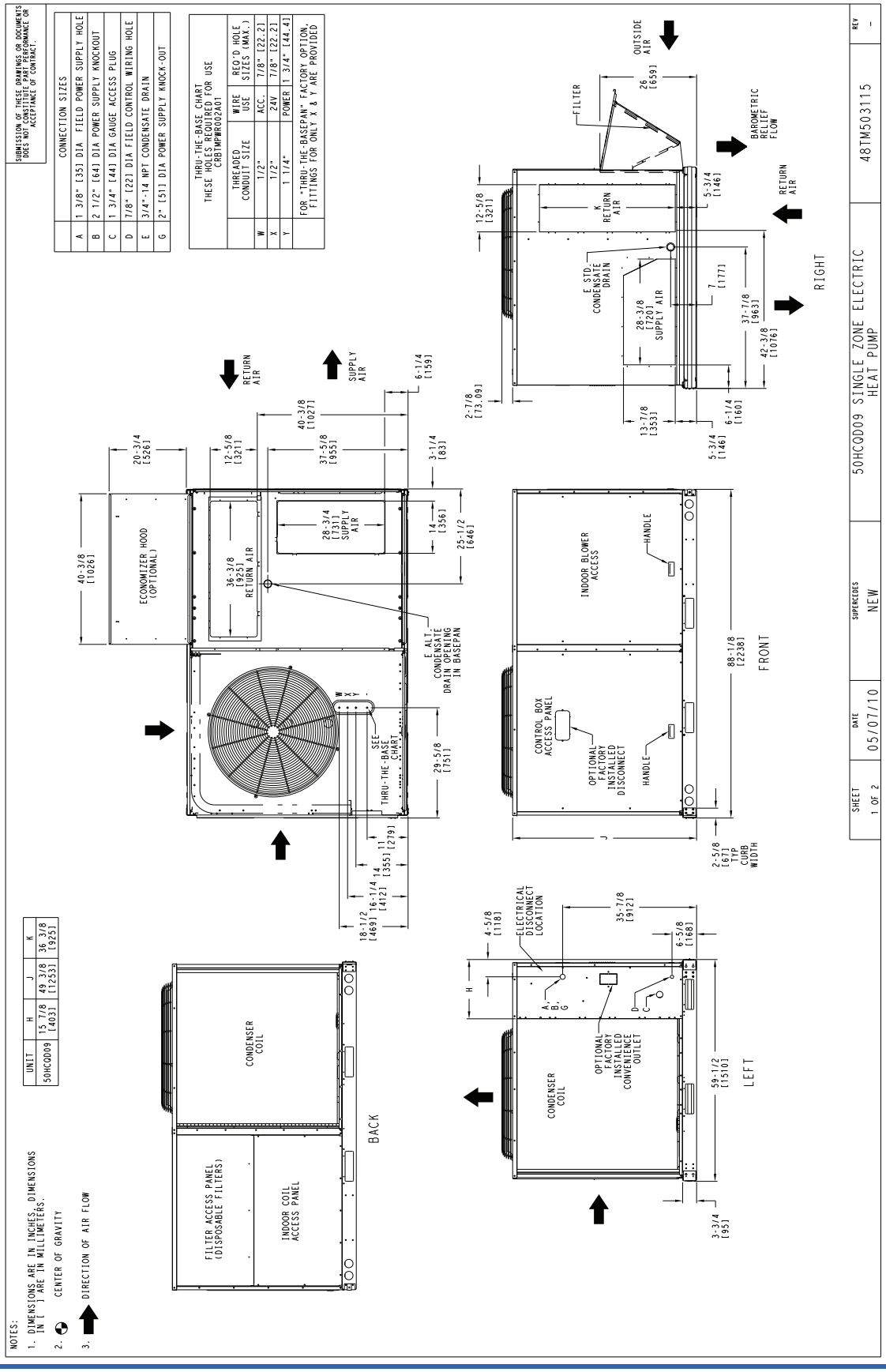


Base unit dimensions (cont)

UNIT DIMENSIONAL DRAWING - UNIT SIZES 07-08 (cont)

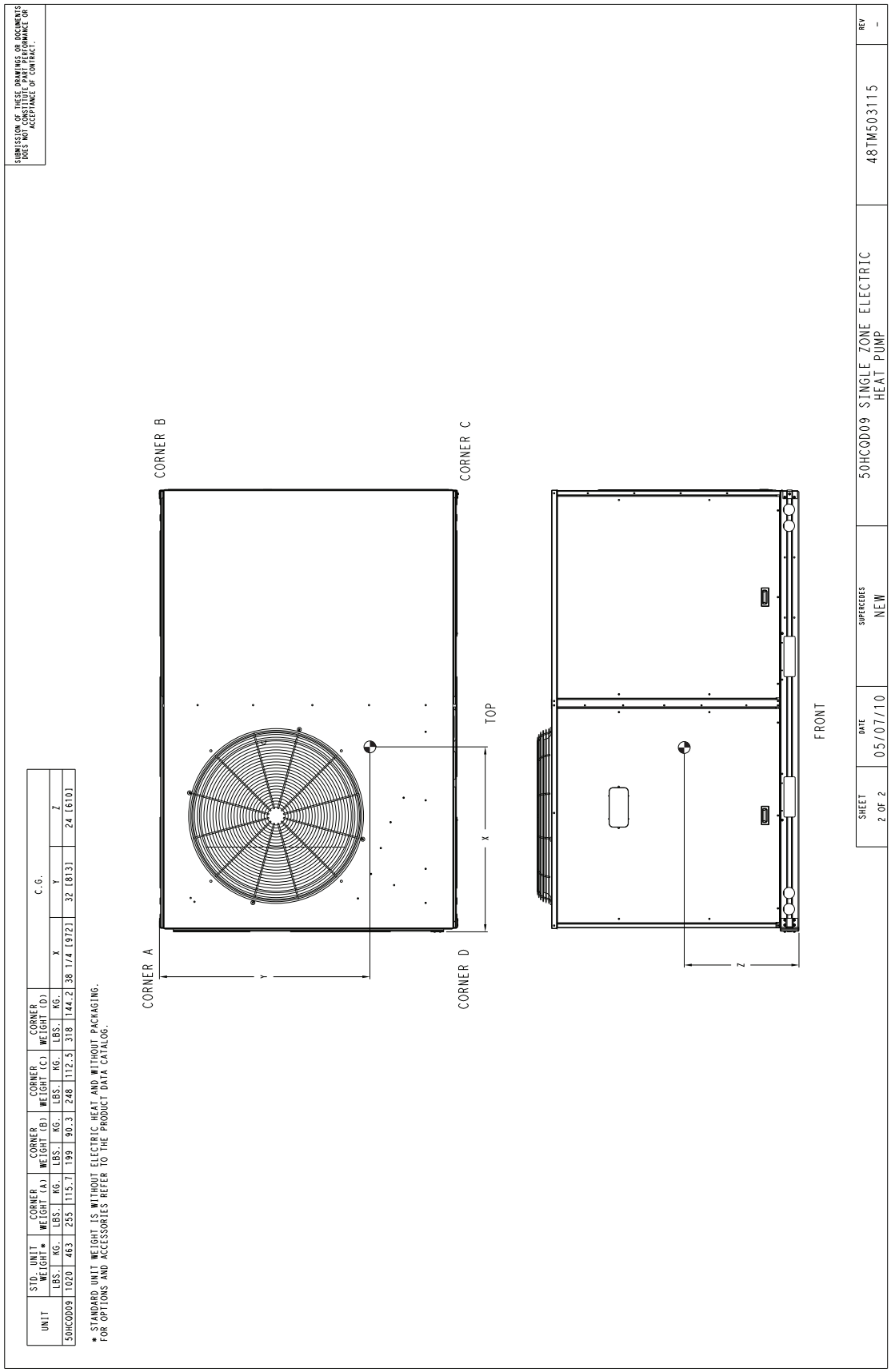


UNIT DIMENSIONAL DRAWING - UNIT SIZE 09



Base unit dimensions (cont)

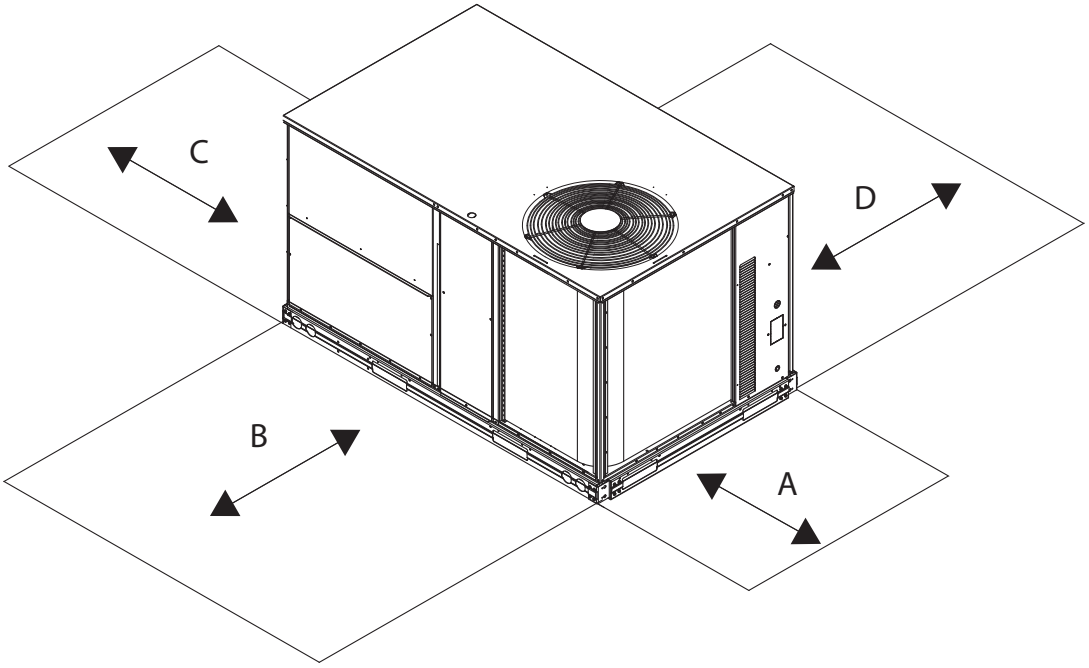
UNIT DIMENSIONAL DRAWING - UNIT SIZE 09 (cont)



UNIT	STD. UNIT WEIGHT*		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
50HCQD09	1020	463	255	115.7	199	90.3	248	112.5	318	144.2	38 1/4 [972]	32 [813]	24 [610]

* STANDARD UNIT WEIGHT IS WITHOUT ELECTRIC HEAT AND WITHOUT PACKAGING.
FOR OPTIONS AND ACCESSORIES REFER TO THE PRODUCT DATA CATALOG.

SERVICE CLEARANCE DIMENSIONAL DRAWING - UNIT SIZE 09

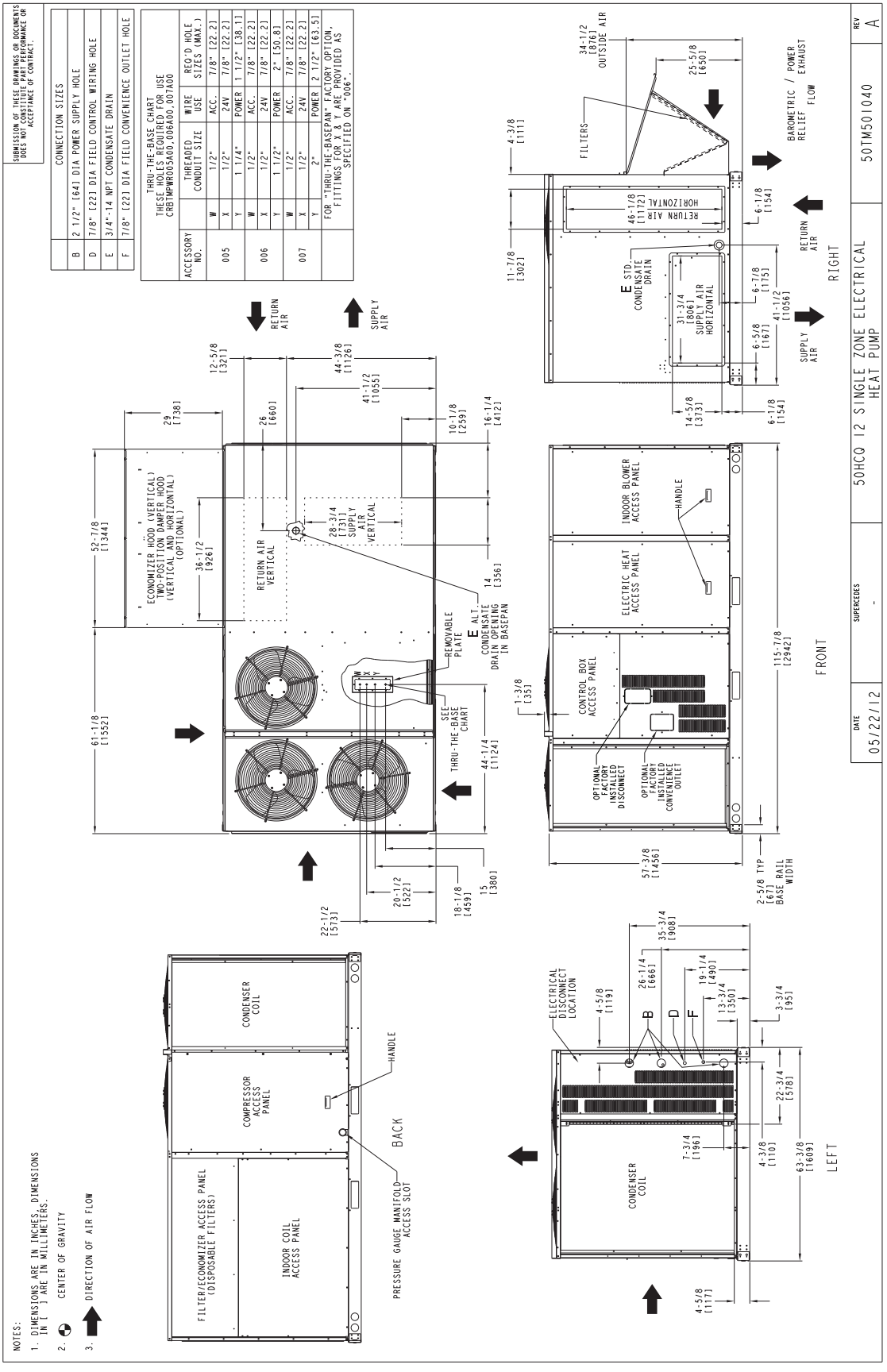


LOCATION	DIMENSION	CONDITION
A	48-in. (1219 mm) 18-in. (457 mm) 18-in. (457 mm) 12-in. (305 mm)	• Unit disconnect is mounted on panel • No disconnect, convenience outlet option • Recommended service clearance • Minimum clearance
B	42-in. (1067 mm) 36-in. (914 mm) Special	• Surface behind servicer is grounded (e.g., metal, masonry wall) • Surface behind servicer is electrically non-conductive (e.g., wood, fiberglass) • Check for sources of flue products within 10-ft of unit fresh air intake hood
C	36-in. (914 mm) 18-in. (457 mm)	• Side condensate drain is used • Minimum clearance
D	42-in. (1067 mm) 36-in. (914 mm)	• Surface behind servicer is grounded (e.g., metal, masonry wall, another unit) • Surface behind servicer is electrically non-conductive (e.g., wood, fiberglass)

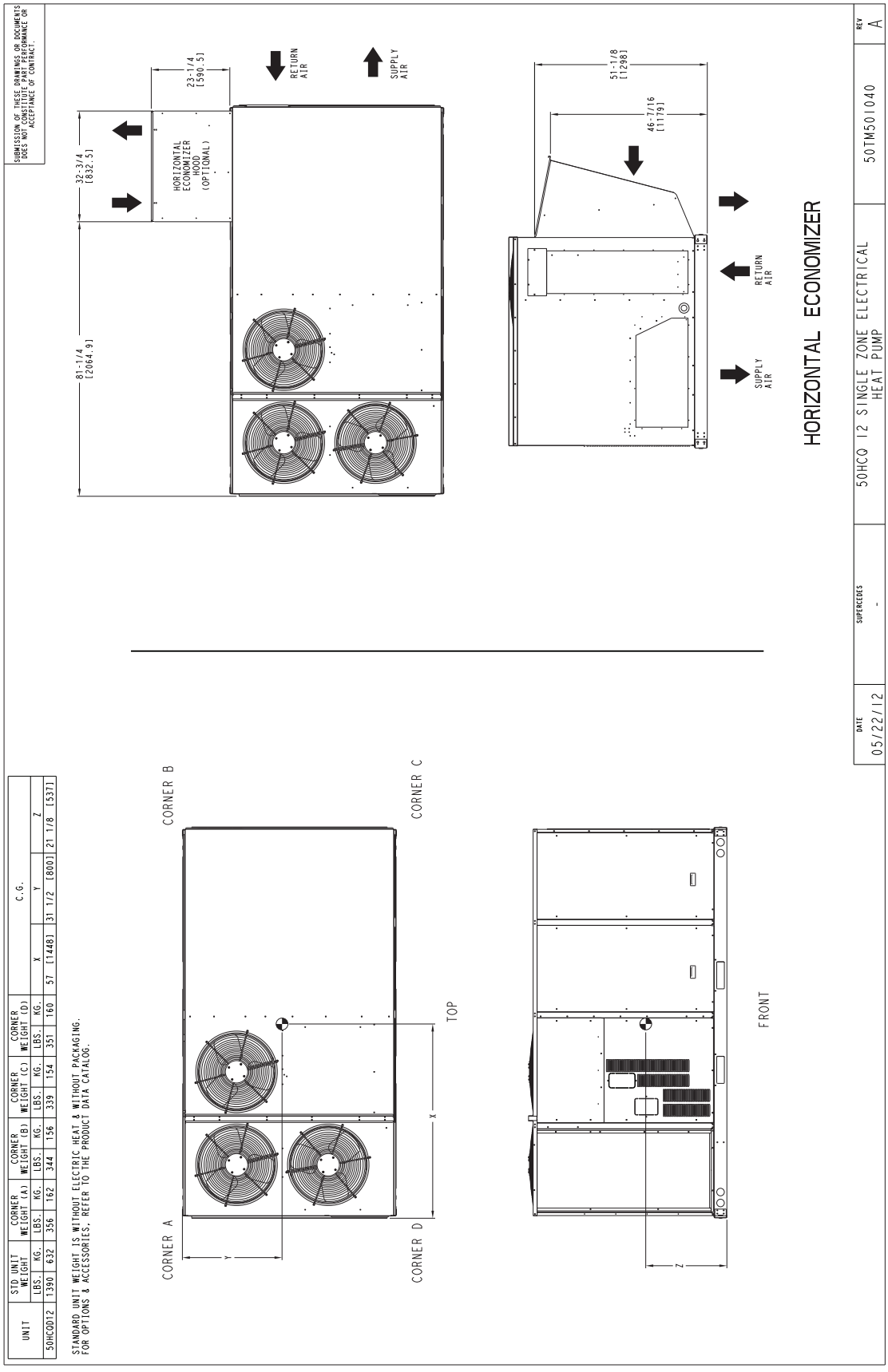
NOTE: Unit not designed to have overhead obstruction. Contact Application Engineering for guidance on any application planning overhead obstruction or for vertical clearances.

Base unit dimensions (cont)

UNIT DIMENSIONAL DRAWING - UNIT SIZE 12



UNIT DIMENSIONAL DRAWING - UNIT SIZE 12 (cont)

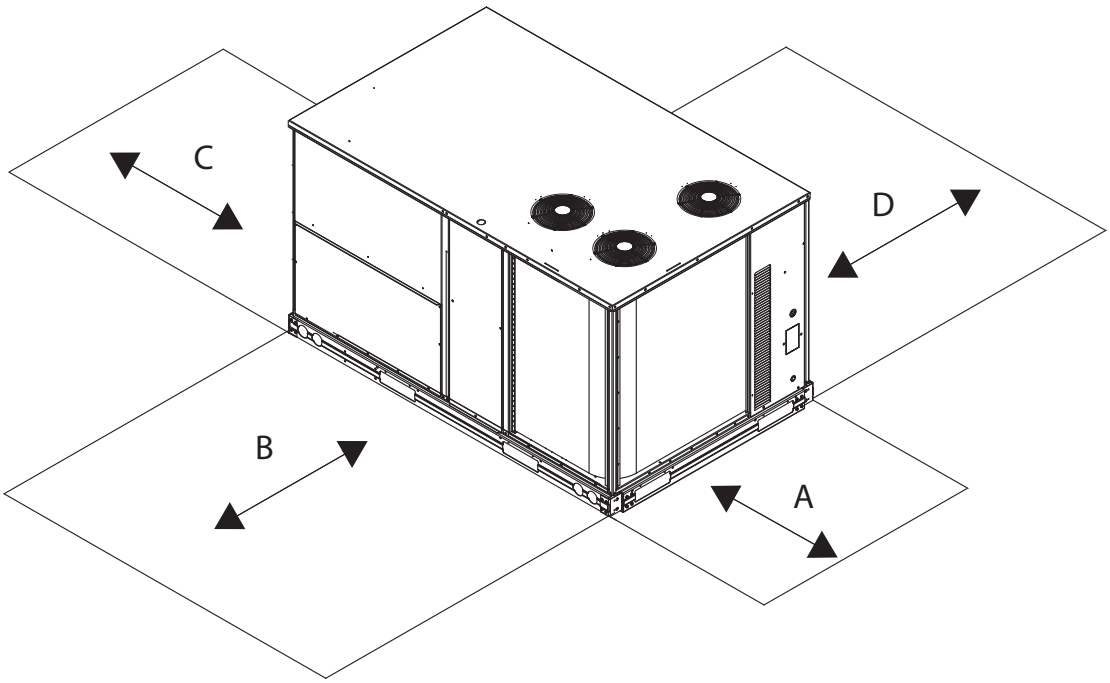


UNIT	STD UNIT WEIGHT		CORNER WEIGHT (A)		CORNER WEIGHT (B)		CORNER WEIGHT (C)		CORNER WEIGHT (D)		C.G.		
	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	LBS.	KG.	X	Y	Z
50HCQD12	1390	632	356	162	344	156	339	154	351	160	57 [1448]	31 1/2 [800]	21 1/8 [537]

STANDARD UNIT WEIGHT IS WITHOUT ELECTRIC HEAT & WITHOUT PACKAGING.
FOR OPTIONS & ACCESSORIES, REFER TO THE PRODUCT DATA CATALOG.

Base unit dimensions (cont)

SERVICE CLEARANCE DIMENSIONAL DRAWING - UNIT SIZE 12

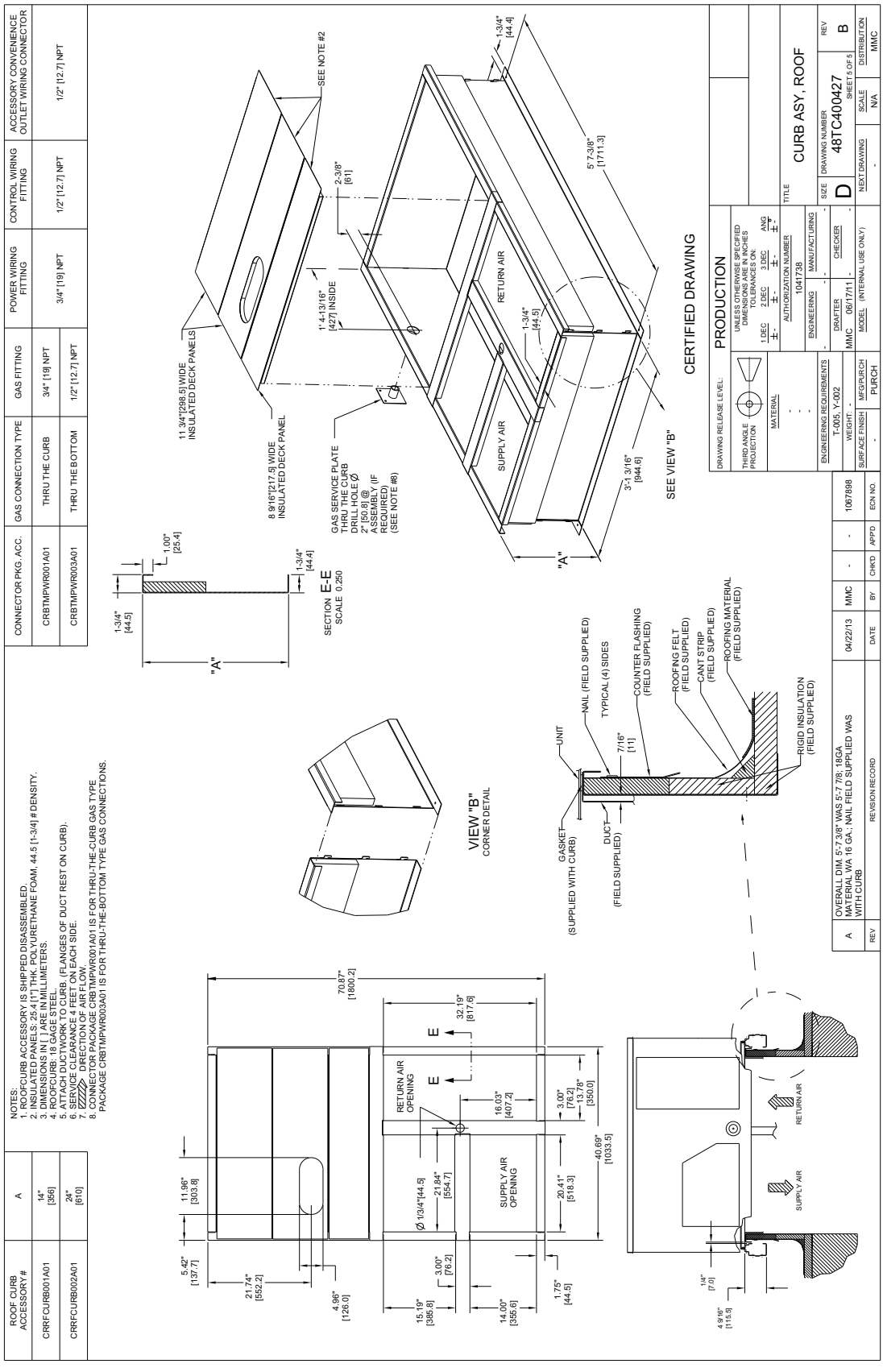


LOCATION	DIMENSION	CONDITION
A	48-in. (1219 mm) 18-in. (457 mm) 18-in. (457 mm) 12-in. (305 mm)	• Unit disconnect is mounted on panel • No disconnect, convenience outlet option • Recommended service clearance • Minimum clearance
B	42-in. (1067 mm) 36-in. (914 mm) Special	• Surface behind servicer is grounded (e.g., metal, masonry wall) • Surface behind servicer is electrically non-conductive (e.g., wood, fiberglass) • Check for sources of flue products within 10-ft of unit fresh air intake hood
C	36-in. (914 mm) 18-in. (457 mm)	• Side condensate drain is used • Minimum clearance
D	42-in. (1067 mm) 36-in. (914 mm)	• Surface behind servicer is grounded (e.g., metal, masonry wall, another unit) • Surface behind servicer is electrically non-conductive (e.g., wood, fiberglass)

NOTE: Unit not designed to have overhead obstruction. Contact Application Engineering for guidance on any application planning overhead obstruction or for vertical clearances.

Accessory dimensions

ROOF CURB DETAILS - UNIT SIZES 04-06



ROOF CURB ACCESSORY #	A
CRRFCURB001A01	14" [356]
CRRFCURB002A01	24" [610]

CONNECTOR PKG. ACC.	GAS CONNECTION TYPE	GAS FITTING	POWER WIRING FITTING	CONTROL WIRING FITTING	ACCESSORY CONVENIENCE OUTLET WIRING CONNECTOR
CRBTMPWR001A01	THRU THE CURB	3/4" [19] NPT	3/4" [19] NPT	1/2" [12.7] NPT	1/2" [12.7] NPT
CRBTMPWR003A01	THRU THE BOTTOM	1/2" [12.7] NPT			

REV	REVISION RECORD	DATE	BY	CHK'D	APP'D	ECN NO.
A	OVERALL DIM. 5'-7 3/8" WAS 5'-7 7/8; 18GA MATERIAL WA 16 GA.; NAIL FIELD SUPPLIED WAS WITH CURB	04/22/13	MMC	-	-	1067898

DRAWING RELEASE LEVEL:	PRODUCTION
THIRD ANGLE PROJECTION	UNLESS OTHERWISE SPECIFIED DIMENSIONS ARE IN INCHES TOLERANCES ON: 1 DEC ±- 2 DEC ±- 3 DEC ±- ANG ±°
MATERIAL	AUTHORIZATION NUMBER 1041738
ENGINEERING REQUIREMENTS	ENGINEERING - MANUFACTURING -
T-005, Y-002	DRAFTER MMC 06/17/11 - CHECKER -
WEIGHT: -	MODEL (INTERNAL USE ONLY) -
SURFACE FINISH -	MFG/PURCH PURCH

SIZE	DRAWING NUMBER	REV
D	48TC400427 SHEET 5 OF 5	B
NEXT DRAWING -	SCALE N/A	DISTRIBUTION MMC